

OPTICAL SWITCH WITH MOVEABLE HOLOGRAPHIC OPTICAL ELEMENT

ABSTRACT

5 An optical switch formed of a holographic optical element (HOE) disposed
above a top surface of a substrate and moveable relative thereto is shown. Light is
traveling through the substrate under total internal reflection, which creates an
evanescent field extending beyond the reflecting surfaces of the substrate. The HOE
is characterized, in one embodiment, by being formed from a plurality of strips that
10 are moveable between a first position in which the strips are above the evanescent
field and a second position in which the strips are inside the evanescent field. In the
first position, the light in the substrate propagates unaffected by the HOE in a primary
direction of propagation. In the second position, the light in the substrate is altered by
the HOE and made to propagate in a reflected direction oblique to that of the primary
15 direction of propagation.